Remarks

New claims 31-34 have been added. Support is found on page 7, lines 27-31 and page 8, lines 1-9.

Rejections

35 U.S.C. §102(b)

Claims 12-16 have been rejected under 35 U.S.C. §102(b) as being anticipated by Hannam (GB 2115699A). The Office Action asserts that Hannam teaches a silicone rubber balloon 5 for a catheter (abstract) that is treated with a methoxysilane (page 1, lines 26-40) and dipped in water to hydrolyze the methoxy groups (page 1, lines 85).

Hannam, GB 2115699A describes a method of making a catheter including the steps ***of pre-treating a portion of a catheter shaft with a solution of reacting silane*** and then immersing the shaft in water. A balloon of silicone rubber is then fitted over the treated portion of the shaft. (Abstract). Thus, it is a portion of the shaft over which the balloon is to be fitted which is pretreated with a reactive silane ***primer***, and not the balloon. See col. 1, lines 26-36 and col. 2, lines 78-82).

Applicants assert that Hannam describes treating catheter shafts with reactive silane primers to improve adhesion between a silicone rubber balloon and a catheter shaft which are adhered with a vulcanizing silicone rubber. Formed silicone rubber is not itself a reactive silane. Thus, there is no suggestion in Hannam to employ reactive silanes as a balloon material as recited in claim 12.

Therefore, the invention of claim 12 is not the same as that of Hannam as required under 35 U.S.C. §102(b) and claim 12 is therefore not anticipated by Hannam. Claims 13-18 depend from claim 12 and are not anticipated by Hannam for at least the reasons that claim 12 is not anticipated by Hannam.

Applicants respectfully request withdrawal of the rejection of claims 12-18 under 35 U.S.C. §102(b) as being anticipated by Hannam, GB 2 115 699 A.

35 U.S.C. §103(a)

Claims 1-8 and 12-19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hannam in view of Nakagawa et al. (US 6479584).

The Office Action asserts that Hannam fails to teach the use of hydrolysable silanes having groups other than amino groups thereon, but that Nakagawa teaches molding materials containing moisture curable combinations of silane crosslinkers with polymers and/or monomers, and that it would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the silane-crosslinkable compositions of Nakagawa to make the silicone rubber balloons of Hannam in order to assure that the silanes of Hannam would react with the silicone polymers of Hannam.

Applicants traverse the rejection.

Independent claim 1 of the present application is directed to a medical device including a dilatation balloon which is formed from the reaction product of at least one polymer and at least one hydrolysable silane.

Independent claim 12 is directed to a balloon catheter comprising a balloon wherein the balloon comprises a moisture cured polymeric material formed from at least one polymer and at least one hydrolysable silane which is crosslinked through –Si—O—Si— linkages.

Hannam is discussed above.

Hannam describes balloons formed from silicone rubber. Silicone rubber has a chemical structure in which the polymer backbone consists essentially of a chain of silicon and oxygen atoms rather than carbon and hydrogen atoms, as is typically the case with other types of rubbers.

Nakagawa et al. describe crosslinking of silyl-terminated stellar-structure vinyl polymers or stellar-structure vinyl block copolymers or chain extended vinyl block copolymers. These are polymers which have an ***organic*** backbone structure of carbon and hydrogen, but which are silyl-terminated, rather than having inorganic silicon and oxygen in the backbone as is the case with the silicone rubber of Hannam. Nakagawa et al.'s polymers are not silicones.

Nakagawa et al. in fact suggest that the resin compositions described therein, can be used in the same fields of application as those of styrenic elastomers which also have carbon and hydrogen in their backbone structure. Styrenic elastomers are also not silicones. See col. 25, lines 51-58. Thus, Nakagawa et al. may provide motivation to substitute the polymers described therein for other organic, styrenic polymers, but there is nothing which can be relied upon as a teaching or motivation to substitute the polymers described therein for silicones.

Hannam also make no suggestion to substitute the silicone rubber described therein with other polymers having carbon/hydrogen in the backbone structure.

Because Nakagawa et al. do not provide any motivation to do so, it would not have been obvious to substitute the polymers of Nakagawa et al. having organic carbon/hydrogen backbones, for the silicone polymers of Hannam which have the inorganic silicon and oxygen in the backbone structure.

Furthermore, the statement made on page 4 in the second full paragraph of the Office Action that it would be obvious to employ the silane-crosslinkable compositions of Nakagawa to make the silicone rubber balloons of Hannam in order to assure that the silanes of Hannam would react with the silicone polymers of Hannam, is incorrect.

Hannam applies a reactive silane to prime the surface of a shaft, prior to fitting a silicone rubber balloon over the shaft. A room temperature vulcanizing silicone is applied to the portion of each of the balloon to be contacted with the shaft. The vulcanizing silicone is allowed to cure. However, the silicone rubber from which the balloon is formed, is not reacted with either the reactive silane or the RTV composite. Thus, to say that it would be obvious to employ the silane-crosslinkable compositions of Nakagawa et al. to make the silicone rubber balloons of Hannam in order to assure that the silanes of Hannam would react with the silicone polymers of Hannam is incorrect. Hannam do not describe reacting a silane with a silicone polymer.

Based on the foregoing, Applicants respectfully request withdrawal of the rejection of claims 1-8 and 12-19 as being obvious over Hannam, GB 2 115 699 A in view of Nakagawa et al., US 6479584.

CONCLUSION

Claims 1-34 are pending in the application. Claims 9-11 have been indicated as being allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants have addressed each of the issues present in the Office Action and respectfully request reconsideration and an early allowance of the claims as presented.

Respectfully submitted,

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